

Serial No. 10/052,716
Amdt. dated March 10, 2006
Reply to Office action of January 12, 2006

5 **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An airport lighting aid simulation generator, comprising:

- a means for receiving a plurality of navigation signals;
- 10 a means for retrieving airport information from a database as a function of one or more of the navigation signals;
- a means for determining a glide path as a function of the airport information retrieved from the database;
- a means for determining deviation from ~~a~~ the glide path as a function of one or more of 15 the navigation signals; and
- a means for outputting a signal representative of the deviation from the glide path; ~~and~~
- ~~a means for outputting a signal representative of a visual image for displaying the deviation.~~

Claim 2 (original): The generator of claim 1, further comprising a means for visually displaying

- 20 the deviation from the glide path as a function of the deviation signal.

Claim 3 (original): The generator of claim 2 wherein the displaying means further comprises a means for displaying the deviation as a pattern of color coded indicators.

- Claim 4 (previously presented): The generator of claim 2 wherein the displaying means further comprises means for displaying information as to a degree of deviation from the glide path as a 25 visual image relative to the pattern of color coded indicators.

Claim 5 (original): The generator of claim 1 wherein the means for determining deviation from a glide path further comprises means for generating the glide path.

Claim 6 (original): The generator of claim 1 wherein the means for determining deviation from a glide path further comprises means for retrieving the glide path from the database.

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5 Claim 7 (cancelled)

Claim 8 (currently amended): A simulated airport lighting aid generator, comprising:

- a an on-board processor structured to receive a plurality of navigation signals representative of a position and an altitude of a host aircraft;
- a an on-board signal generator operated by the processor, the generator being structured
- 10 to retrieve airport glide path information from a database as a function of the position signal, compare the position and altitude signals with a-the glide path information, and output a signal representative of a degree of coincidence with the glide path as a function of the position and altitude signals; and
- a an on-board display structured to receive the signal output by the signal generator and
- 15 responsively output a visual indication of the degree of coincidence with the glide path.

Claim 9 (cancelled)

Claim 10 (cancelled)

Claim 11 (cancelled)

- Claim 12 (previously presented): The generator of claim 8 wherein the illuminated indicators are
- 20 positioned on the display to appear in positions consistent with ground-based airport lighting aids as seen on approach.

Claim 13 (cancelled)

Claim 14 (original): A glide path deviation generator, comprising:

- a memory having a stored database of airport information accessible as a function of
- 25 position, the airport information including runway location, elevation and direction information;
- a processor coupled to receive position and elevation data and coupled to the memory for retrieving the airport information as a function of the position, the processor being structured to operate a computer program for generating a glide path, comparing the position and elevation data to the glide path, and generating a signal representative of deviation of the position and
- 30 elevation data from the glide path; and

- 5 a cockpit display being coupled to receive the deviation signal and being structured to display a pattern of color coded indicators as a function of the deviation signal.

Claim 15 (original): The generator of claim 14 wherein operating a computer program for generating a glide path further comprises operating the computer program as a function of the airport information to compute a glide path.

- 10 Claim 16 (original): The generator of claim 14 wherein operating a computer program further comprises operating the computer program repeatedly for comparing updated position and elevation data to the glide path, and generating a signal representative of deviation of the updated position and elevation data from the glide path.

- 15 Claim 17 (original): The generator of claim 14 wherein the pattern of indicators further comprises a pattern of indicators that substantially simulates an airport lighting aid.

Claim 18 (cancelled)

Claim 19 (previously presented): The generator of claim 17 wherein the airport lighting aid substantially simulated by the pattern of indicators further comprises a simulated Visual Approach Slope Indicator having a pointer portion that is programmed to simulate a vertical deviation scale.

- 20 Claim 20 (original): A computer program product for indicating deviation from a glide path, wherein the computer program product comprises:

 a computer-readable storage medium;
 and computer-readable program code means embodied in the medium, the computer-readable program code means comprising:

- 25 first computer-readable program code means for determining a global position from a received plurality of navigation data,

 second computer-readable program code means for determining an altitude above ground level from one or more received navigation datum,

- 30 third computer-readable program code means for retrieving a plurality of airport information from a database of airport information as a function of the position determined from the first computer-readable program code means,

- 5 fourth computer-readable program code means for determining correspondence between the position determined from the first computer-readable program code means combined with the altitude determined from the second computer-readable program code means and a glide path determined as a function of the airport information determined from the first computer-readable program code means, and
- 10 fifth computer-readable program code means for outputting a signal as a function of the correspondence determined from the fourth computer-readable program code means.

Claim 21 (original): The computer program product of claim 20 wherein the fourth computer-readable program code means for determining correspondence between the position combined with the altitude and the glide path further comprises means for computing the glide path as a function of the airport information.

Claim 22 (original): The computer program product of claim 20 wherein the fourth computer-readable program code means for determining correspondence of the position and altitude with the glide path further comprises computer-readable program code means for retrieving the glide path as one of the plurality of airport information retrieved from the database of airport information.

Claim 23 (original): The computer program product of claim 20, further comprising sixth computer-readable program code means for interpreting the signal output by the fifth computer-readable program code means as a pattern of color coded indicators on a cockpit display.

25 Claim 24 (original): The computer program product of claim 23 wherein the pattern of display indicators simulates a known airport lighting aid.

Claim 25 (original): The computer program product of claim 24 wherein the simulated airport lighting aid further comprises a substantially conformal presentation.

Claim 26 (cancelled)

- 5 Claim 27 (original): The computer program product of claim 24, further comprising a seventh computer-readable program code means for interpreting the signal output by the fifth computer-readable program code means as a pointer indicator for simulating a vertical deviation scale on the cockpit display.
- Claim 28 (currently amended): A method for using an electronic circuit to compare a signal
10 conveying navigation data with a predetermined glide path, the method comprising:
 receiving a plurality of navigation signals;
 retrieving airport information from a database as a function of one or more of the navigation signals;
 determining deviation from a glide path as a function of one or more of comparing the
15 navigation signals and one or more of the airport information;
 and outputting a signal representative of the deviation from the glide path.
- Claim 29 (original): The method of claim 28, further comprising visually displaying the deviation from the glide path as a function of the deviation signal.
- Claim 30 (previously presented): The method of claim 29 wherein displaying the deviation further
20 comprises displaying an airport image as a function of the airport information retrieved from the database; and displaying the deviation as a substantially conformal presentation relative to the airport image.
- Claim 31 (original): The method of claim 29 wherein displaying the deviation further comprises displaying color coded information as to a degree of deviation.
- 25 Claim 32 (original): The method of claim 28 wherein determining the deviation from a glide path further comprises computing the glide path as a function of one or more of the airport information.
- Claim 33 (original): The method of claim 28 wherein determining the deviation from a glide path further comprises retrieving the glide path from the database.
- 30 Claim 34 (original): The method of claim 28, further comprising updating the deviation over time.

5 Claim 35 (original): The method of claim 34 wherein updating the deviation over time further comprises repeating the determining of the deviation from the glide path at predetermined intervals.

Claim 36 (previously presented): The method of claim 31 wherein displaying color coded information as to a degree of deviation further comprises displaying an illuminated indicator

10 indicating the degree of deviation from the glide path positioned relative to a pattern of illuminated indicators simulating a known airport lighting aid.

Claim 37 (previously presented): The generator of claim 8 wherein the display further comprises:

a pattern of illuminated indicators simulating a known airport lighting aid, and
an illuminated degree of deviation indicator indicating a degree of deviation from

15 coincidence with the glide path, the illuminated degree of deviation indicator being positioned relative to the pattern of illuminated indicators simulating a known airport lighting aid.

Claim 38 (cancelled)

Claim 39 (previously presented): The generator of claim 8 wherein the signal generator is further structured to output signals representative of a lateral deviation scale relative to the runway; and

20 the display is further structured to responsively output a visual indication of the lateral deviation scale.

Claim 40 (previously presented): The generator of claim 8 wherein the signal generator is further structured to output signals representative of horizontal and longitudinal perspective line segments in positions relative to ground as a function of the airport information and the position

25 and altitude of the host aircraft; and

the display is further structured to responsively output a visual indication of the horizontal and longitudinal perspective line segments in positions constructed to appear conformal to a flat surface on the ground.

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- 5 Claim 41 (previously presented): The generator of claim 8 wherein the signal generator is further structured to output signals representative of a path to a current waypoint and a next waypoint; and
the display is further structured to responsively output a visual indication of the path to the current and next waypoints.
- 10 Claim 42 (new): The generator of claim 1 wherein the means for determining deviation from the glide path as a function of one or more of the navigation signals further comprises determining deviation from the glide path as a function of one or more of the navigation signals exclusive of an Instrument Landing System (ILS) signal.
- Claim 43 (new): The generator of claim 8 wherein the navigation signals are further exclusive of
15 an Instrument Landing System (ILS) signal.